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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,346	08/29/2003	Andrew Ching Tam	60717-300502 (SJO000019US)	1303
48487 7590 01/10/2007 INTELLECTUAL PROPERTY LAW OFFICES 1901 SOUTH BASCOM AVENUE SUITE 660 CAMPBELL, CA 95008			EXAMINER ELVE, MARIA ALEXANDRA	
			ART UNIT 1725	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/10/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/652,346

Applicant(s)

TAM ET AL.

Examiner

M. Alexandra Elve

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-24 & 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga et al. (USPN 4,301,353) in view of Chiba et al. (USPN 6,774,340) and Kerth et al. (USPN 5,544,775).

Suenaga et al. discloses using a laser beam for forming a slider. The laser beam is scanned (reflected) by the polygon mirror. The laser pulse width is approximately 10 nsec to 1  $\mu$ sec. A beam expander composed of convex lenses and contracted and shaped by a slit magnifies the laser beam. The slider is brought into coincidence with the focusing plane of the optical system. Q-switching is used on the laser. The rotating polygon mirror is a directing device.

Suenaga et al. does not teach repetition, energy per pulse, fluence or the presence of a stage.

Chiba et al. discloses laser marking of a silicon semiconductor material. The pulse width of the laser beam is 10 to 700 ns. Marks (spots or dots) may have a protrusion shape, an indentation shape or a combination of both. The average mark

depth is 0.01 to 5  $\mu\text{m}$ . care is taken during processing to negate deformation (cracking) from occurring. The laser beam may be produced by an YVO<sub>4</sub> laser with wavelengths from 300 to 1064 nm (thus encompassing the green range). Diameters are in the range of 1.5 to 6.5 times larger than the dot diameter of 7.2 to 30  $\mu\text{m}$  (i.e. 10.8 to 195  $\mu\text{m}$ ). Speed and marking is such that the dots are equivalent spaced as shown in figure 3. Table 1 gives the dot diameter and the energy density, which yield an energy pulse in the range of 0.87 to 9.3 micro joules. Repetition of 1 kHz or less.

Kerth et al. ('775) discloses the making of a high definition, high aspect ratio slider using laser etching. The laser pulse duration is 16 ns and the fluence is substantially 600 mj/cm<sup>2</sup>. Figure 3 shows the slider workpiece (68) mounted on a holder (78).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the repetition, the energy per pulse, the fluence and use a holder (stage) as taught by Chiba et al. and Kerth et al. ('775) in the Suenaga et al. system because these are merely functional components of a laser etching system.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga et al., Chiba et al. and Kerth et al. ('775), as stated in the above and further in view of Rieger et al. (USPN 5,790,574).

Suenaga et al., Chiba et al. and Kerth et al. ('775) do not teach a harmonic.

Rieger et al. discloses a laser which used for ablation and etching. The average power range is 1 kW. The laser is Q-switched and the system generates about 150 ps

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at a frequency of 1 kHz. The energy per pulse is 0.6  $\mu$ J. In addition a second harmonic generator may be used. The system also has a steering mirror, a beam expander, and highly reflective mirrors.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a harmonic, determine the energy per pulse and the repetition, as taught by Rieger et al. in the Suenaga et al., Chiba et al. and Kerth et al. ('775) system because these are merely standard parameters used in a laser ablation system.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga et al., Chiba et al. and Kerth et al. ('775), as stated in the above and further in view of Kerth et al. (USPN 5,739,048).

Suenaga et al. and Kerth et al. ('775) do not teach producing multiple sliders in the system.

Kerth et al. ('048) discloses forming rows of sliders which are partial cut following fabrication which allows easy inspection and packing, but allows for easy separation of the completed slider just prior to assembly.

It would have been obvious to form multiple sliders as taught by Kerth et al. ('048) in the Suenaga et al., Chiba et al. and Kerth et al. ('775) system because of the enhanced manufacturing efficiency.

***Response to Arguments***

Applicant's arguments filed 10/22/06 have been fully considered but they are not persuasive. Applicant argues that the combination of limitations; energy per pulse and repetition are not taught. The examiner respectfully notes that these limitations are taught by the Chiba et al. reference.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 8, 2007.



M. Alexandra Elve  
Primary Examiner 172